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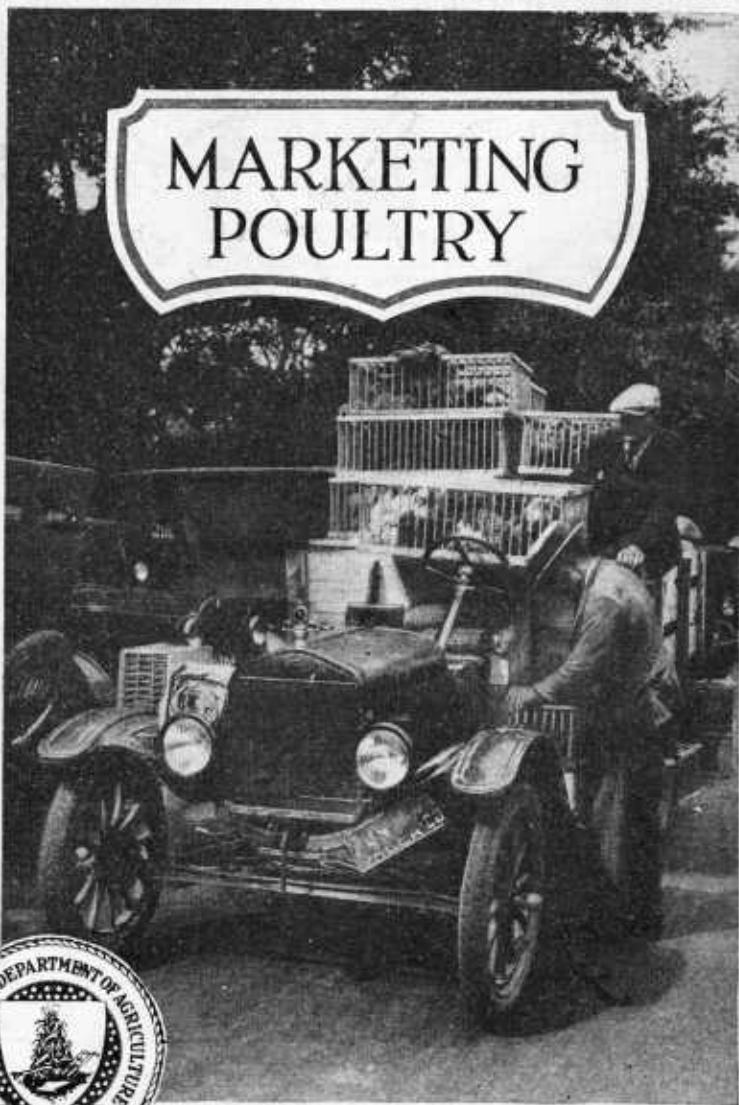
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MARKETING  
POULTRY



## **LIVE POULTRY FOR MARKET**

Can be profitably fattened for a week or 10 days if in thin condition.

Should be graded by age, sex, and size and the different classes should be shipped in separate coops.

Should be fed liberally just before shipment and, if 24 or more hours will elapse before reaching the market, a tin can or two, filled with whole corn well soaked in water, may be nailed in each coop to provide the birds with water and to cut down shrinkage during shipment.

## **POULTRY DRESSED BY THE PRODUCER**

Can be fattened profitably for 10 to 14 days before killing.

Should be fasted at least 12 hours before killing, but given plenty of fresh, clean water to flush out the crops and intestines.

Must be well bled and cleanly picked according to market requirements.

Should never be scald-picked for a market that prefers dry-picked.

Must be thoroughly chilled to remove all body heat before shipping.

Should be graded for uniform quality and size; and those in poor condition of flesh, with torn skins or blemishes, should be shipped in separate packages.

Should be packed in boxes lined with clean paper or in unlined barrels that are ventilated by having holes bored in them.

Should be tightly packed so that they will not shift about in the packages.

Must be packed with alternate layers of cracked ice in warm or unseasonable weather.

## **WHEN SHIPPING LIVE OR DRESSED POULTRY**

Package or coops should be plainly marked with address of the receiver and with the name and address of the shipper.

Packages of dressed poultry should be marked with the kind of poultry and the gross, tare, and net weights.

# MARKETING POULTRY

By ROB R. SLOCUM, *Senior Marketing Specialist, Division of Dairy and Poultry Products, Bureau of Agricultural Economics*

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THERE IS comparatively little specialization in this country in raising market poultry. In some of the localities close to cities some attention is given to the production and finishing of poultry for special trade outlets, but for the most part the finest poultry coming to market consists of birds which have been finished in the large poultry-feeding stations run in conjunction with poultry-packing houses. In eastern and northeastern United States and in some other sections, a considerable development in the raising of winter broilers has taken place during the last few years. On Long Island there is a highly specialized production of young ducklings and in some other sections local specialization, like the raising and fattening of turkeys and geese may be important.

## WHERE POULTRY IS PRODUCED

The great bulk of market poultry is a by-product incidental to the production of eggs and on specialized egg farms market poultry is entirely a secondary proposition. On general farms poultry is kept to supply both eggs and poultry for the table and to produce primarily eggs for sale. Under these conditions the great bulk of market poultry consists of old stock of all kinds, principally hens that are sold when they have become unprofitable, and of the surplus young males produced in the course of rearing pullets to renew the laying flocks.

Chickens are reared and marketed in considerable numbers in various areas of the East and on the Pacific coast, but over 50 per cent of the supply is produced on the general farms of the East North Central and the West North Central States. According to estimates of the Bureau of Agricultural Economics for the year 1929, Iowa led in the number of chickens raised with 48,612,000, followed

in order by Missouri, Illinois, Ohio, Kansas, Indiana, Texas, Minnesota, Pennsylvania, and Nebraska. The States of the Middle West not only raise more chickens and other poultry, but they also have a greater surplus above their own needs for shipment to the large cities. (Fig. 1.)

The smaller cities obtain their requirements largely from the territory immediately surrounding them. The local production is decidedly inadequate for the larger cities and a large proportion of the supply is drawn from the more remote surplus-producing sections. For example, the 1930 receipts of dressed poultry at New York City from the States of New York, New Jersey, and Pennsylvania amounted to less than 8 per cent of the total.

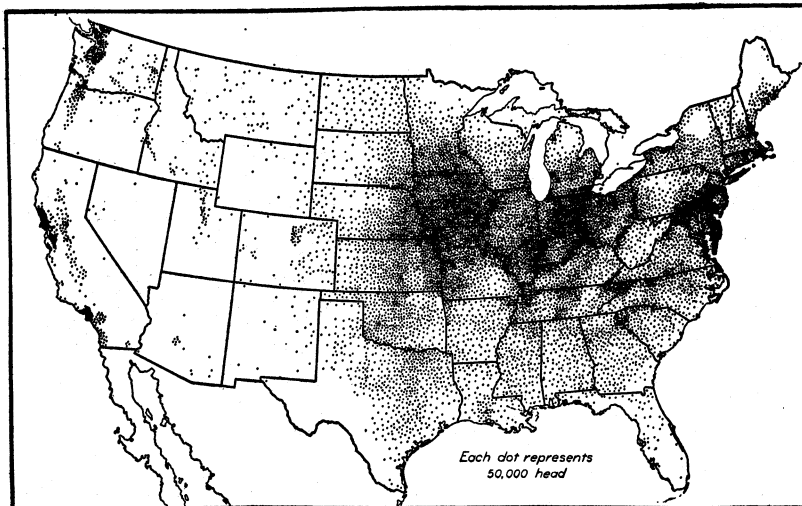


FIGURE 1.—NUMBER OF CHICKENS RAISED ON FARMS, 1924

The census shows a wide distribution of poultry production.

The estimated number and value of chickens raised on farms in the United States in 1929 were as follows:

Number of chickens raised.....	697, 548, 000
Value of chickens raised.....	\$544, 104, 000

#### THE PROBLEM OF TRANSPORTATION

On the one hand are the large poultry-consuming cities (fig. 2) and on the other the producing areas of the Middle West, with a long distance, in most cases, intervening between them. The problem is one of moving the poultry from the sources of production to the points where it is needed in such a manner as to insure its arrival in the best possible condition of quality and with the least possible cost. In the shipment of poultry to New York City, an average haul of at least 1,000 miles is involved. To meet this need the business of the poultry packer and shipper has developed.

For efficiency and economy in handling, the poultry sold in small lots from the individual farms must be assembled at central points and shipped, either alive or dressed, in larger lots, often in car lots.

Much of the poultry is dressed before shipment to the final markets and this requires establishments especially equipped for the purpose. The dressed poultry is highly perishable unless handled at low temperatures, and for this reason the use of refrigerator cars in shipping is essential. To prevent heavy shrinkage in weight in shipping live poultry considerable distances, it is necessary to use cars specially constructed for this purpose, so that the poultry can receive proper care and feeding in transit. The transportation of poultry from the areas of production to the points of consumption involves many complex problems and the performance of numerous services.

### SEASONAL PRODUCTION

Production of poultry is not uniform throughout the year. Chickens are normally hatched and reared in the spring and summer and the crop of surplus chickens available for sale does not reach large

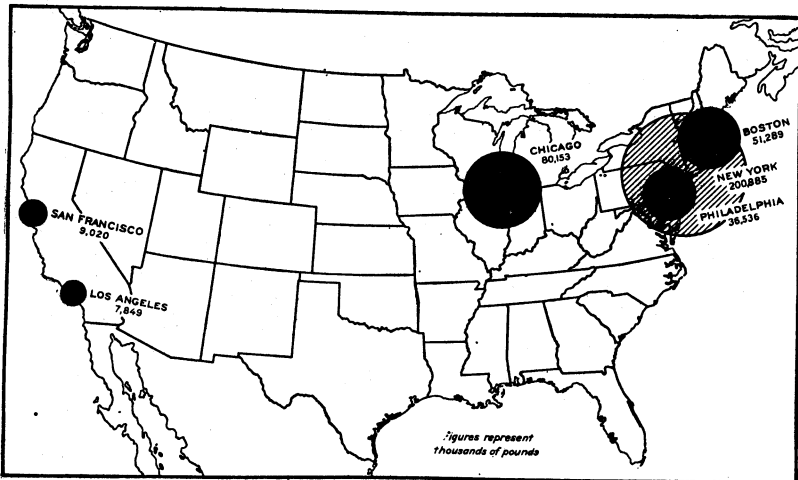


FIGURE 2.—RECEIPTS OF DRESSED POULTRY AT SIX MARKETS, 1930

Receipts of dressed poultry at the principal markets give some indication of the leading centers of consumption.

proportions until June or July, and does not continue much beyond January. A majority of the hens marketed are sold during the late summer and fall, after they have finished laying for the season. The heavy demand for poultry at Thanksgiving and Christmas also stimulates larger shipments at those times. The seasonal character of the receipts of dressed poultry is well illustrated in Figure 3.

The movement of live poultry to market shows much of the same general character as that of dressed poultry, but is more irregular. The Jewish holidays, which occur in the spring and fall, bring an increased demand for live birds and stimulate the shipments in anticipation of them. (Figs. 4, 5, and 6.)

### THE PART COLD STORAGE PLAYS

With dressed poultry arriving on the markets in quantities larger than can be currently used during the fall and early winter, and

in quantities below the requirements for consumption at other seasons, cold storage is utilized to hold the surplus from the season of flush receipts for use during the season of scanty receipts in the late winter and spring. Cold storage therefore serves as a balance be-

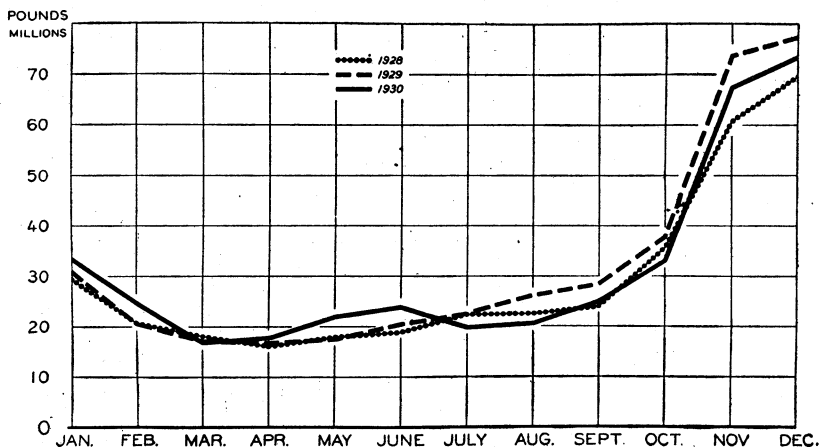


FIGURE 3.—RECEIPTS OF DRESSED POULTRY AT FIVE MARKETS, 1928-1930

Receipts of dressed poultry at New York, Chicago, Philadelphia, Boston, and San Francisco, are heaviest in the late fall and early winter. They decline during the late winter and early spring and remain relatively light throughout the summer.

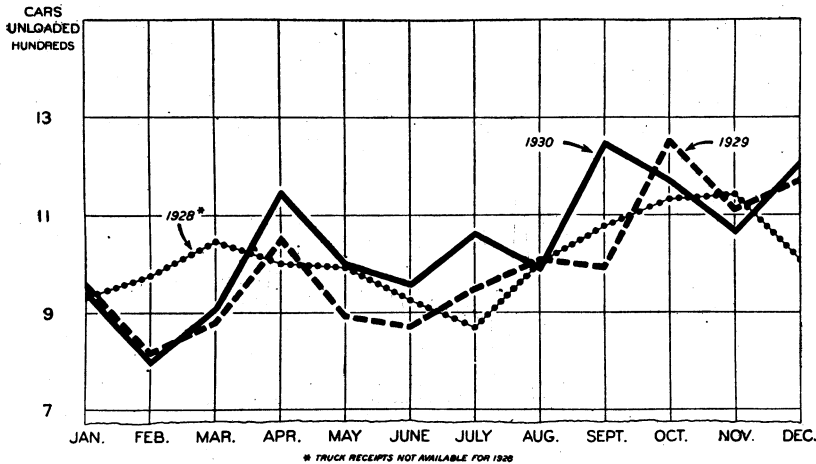


FIGURE 4.—FREIGHT UNLOADS PLUS EXPRESS AND TRUCK RECEIPTS OF LIVE POULTRY, NEW YORK CITY, 1928-1930

Receipts are relatively stable throughout the year except for increased supplies in the spring and fall caused by the Jewish holidays and by Thanksgiving and Christmas.

tween supply and demand. Without it, poultry would bring ruinously low prices to the producer at the normal period of marketing or would make necessary the holding of the poultry over the winter season, which would entail an increased cost. With cold storage, the farmer is enabled to market his poultry when it is ready to be turned off

and at satisfactory prices. In addition, the consumer is assured of an abundant supply of wholesome poultry at reasonable prices the year around. Stocks of poultry in cold storage reach their height in January or February and then gradually decline, reaching their low point in the late summer or early fall. (Fig. 7.)

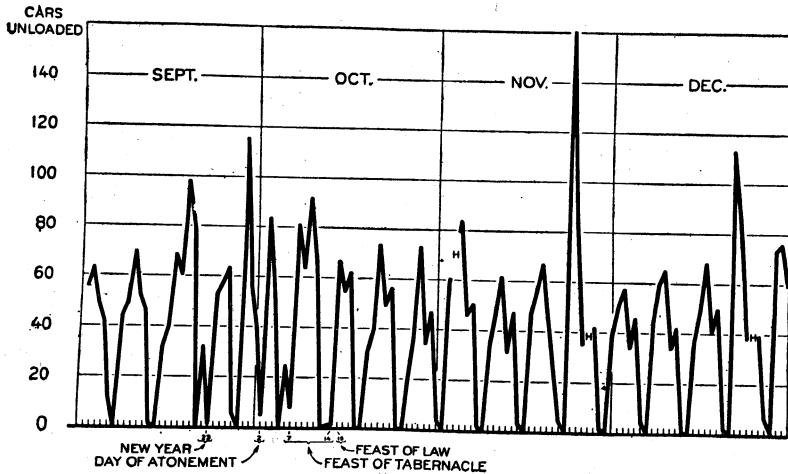


FIGURE 5.—FREIGHT UNLOADS PLUS EXPRESS AND TRUCK RECEIPTS OF LIVE POULTRY, NEW YORK CITY, SHOWING THE INFLUENCE OF THE SPRING JEWISH HOLIDAYS, 1930

On Sundays and usually on Saturdays little or no poultry is unloaded. During the weeks when holidays do not influence the unloads, Tuesday, Wednesday, and Thursday are usually the days of heaviest unloads.

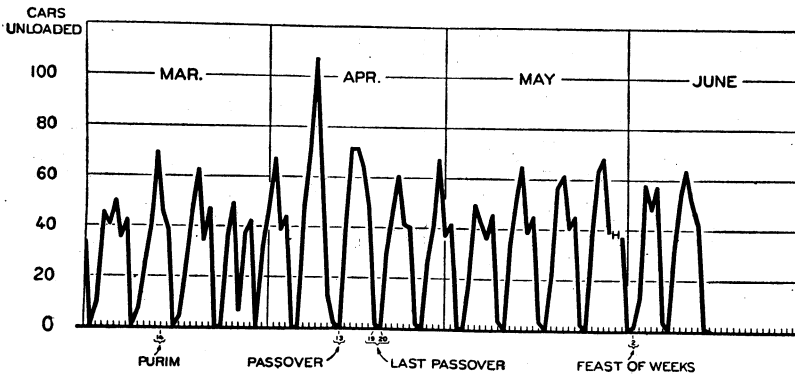


FIGURE 6.—FREIGHT UNLOADS PLUS EXPRESS AND TRUCK RECEIPTS OF LIVE POULTRY, NEW YORK CITY, SHOWING THE FALL JEWISH HOLIDAYS

The receipts normally show a marked increase at the time of or just previous to the holidays of spring and fall. The influence of Thanksgiving and Christmas is also apparent.

#### METHODS OF MARKETING

Producers may market their poultry either alive or dressed. When poultry is sold alive by the producer it may subsequently be dressed by the poultry packer and shipped to market in that condition. Much the larger proportion of poultry leaves the producers'



hands alive, and the process of dressing and shipping to the final markets has developed into a large and specialized packing industry. This industry differs from the meat-packing industry in that it is carried on by many comparatively small packing establishments located throughout the poultry-producing sections of the Central West, where the fowls that are not shipped to market alive are concentrated and dressed comparatively near the point of production.

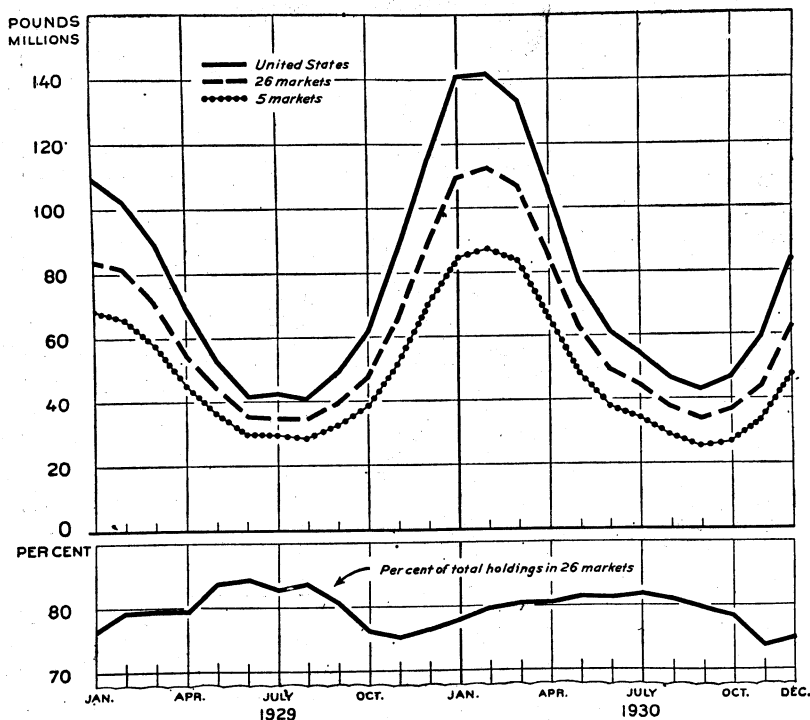


FIGURE 7.—COLD-STORAGE HOLDINGS OF DRESSED POULTRY AND PERCENTAGE OF TOTAL UNITED STATES HOLDINGS IN THE 26 MARKETS, 1929-30.

The stocks of dressed poultry in cold storage reach their low point about September 1, from which time they increase rapidly. The holdings in the 26 markets run between 70 and 85 per cent of the total holdings and show rather a regular variation from season to season. Holdings in the 26 markets, which are available weekly, can be used to estimate the total United States holdings as of the first of each month.

#### MARKET CHANNELS FOR POULTRY

Poultry may be marketed by the producer direct to the consumer, through a poultry dealer located in some near-by consuming market, or through a local buyer who may or may not be an agent for a packer.

##### PRODUCER TO CONSUMER

Both live and dressed poultry is marketed from the producer direct to the consumer. The quantity of poultry sold by this method is comparatively small, for it requires that the producer establish a contact with the consumer and produce a product of high quality

which often must be especially fattened or finished. The prices received are good. Usually delivery is made direct to the consumer or sale is made on the producer's own premises or through a roadside market. In recent years the quantity of poultry sold at roadside markets has undoubtedly increased considerably.

#### PRODUCER TO POULTRY DEALER

The most common method of marketing poultry if the producer is within easy shipping distance of a large consuming market, is to ship it alive in coops by express or truck to a poultry dealer who has market outlets and who sells the producers' product for a commission or buys it for his own account at or in relation to prevailing market quotations. A modification of this method may consist of shipping to meat markets, hotels, or other agencies which retail to the consumer either live or dressed poultry. Except in the case of turkeys or of farms which specialize in market poultry, like the duck farms on Long Island, or at the holiday season, very little poultry is actually slaughtered by producers and shipped to market as dressed poultry.

#### PRODUCER TO POULTRY BUYER OR PACKER

The great bulk of the poultry which supplies the large eastern markets, like New York, is not produced on neighboring farms, but averages a haul, by rail, of 1,000 or more miles from the producing sections. Shipments from individual farms by express for such a distance are impracticable, and so a market channel has gradually been developed whereby carload lots of live poultry and of dressed poultry are concentrated at shipping points. Briefly traced, this channel from producer to consumer ordinarily is as follows: The farmer sells his poultry alive to a local buyer or he ships it alive in coops by freight or motor truck to a poultry dealer or packer located at a concentrating point, usually a railroad junction. The local buyer may be an independent buyer or an agent or buyer for the packer.

When received at the packing house the poultry may be sorted out for car-lot shipment alive by fast freight to the final market. Or what is more usual, it may be held on the feeding floor for one or two weeks before it is dressed, chilled, graded, and packed, and then shipped in refrigerator cars to large consuming markets either for immediate consumption or for holding in cold storage for future sale. The dressed-poultry dealers in large markets sell to jobbers or direct to retailers. The business of jobbers is to sell to the retailers, who in turn supply the consumer. (Fig. 8.)

In some of the larger cities an organization composed of dealers, known as the poultry exchange or poultry board, formulates rules governing trading in poultry by its members, establishes grades, and maintains a room where dealers may meet for the purpose of buying and selling and considering matters of general interest.

#### MARKET GRADES AND QUOTATIONS

Market grades and quotations for poultry are not uniform in the different markets. In some markets in which the demand is for

birds of certain weights bearing descriptive local names or terms, customs has resulted in the quoting of grades which may not appear in the quotations of other markets. In the main, however, the different grade terms used indicate fairly definitely the various kinds and to some extent the qualities of market poultry.

Poultry quotations cover the three main classes—that is, live, fresh dressed, and frozen. The third is poultry that has been held in cold storage in a frozen condition to enable it to be carried for a considerable period of time.

Various grades may be quoted in the dressed-poultry classes, based upon condition, quality, age, and sex. A few other factors may be recognized in quoting dressed poultry, chief among which are: Scalded or dry picked, ice or dry packed, and milk or grain fed. Style of package and weight of a dozen birds of a certain grade may be recognized. Quotations may also specify the point of origin, as "southern" or "western," especially if market grades are not clearly defined.

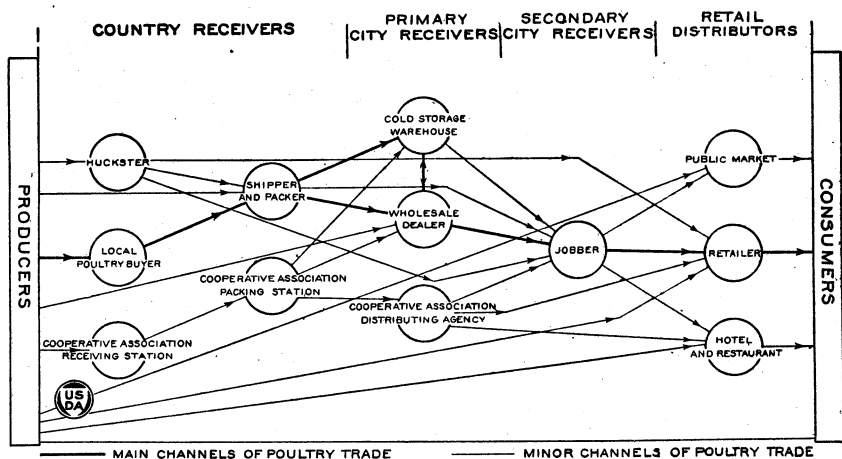


FIGURE 8.—Channels of poultry trade

As a rule, dry-picked or semiscalded poultry is of better appearance and has a better keeping quality than scald-picked poultry. It generally brings better prices. In some markets, however, no discrimination is made against scalded poultry.

Ice-packed poultry is usually packed in barrels with alternate layers of crushed ice and poultry. Ice packing is usually resorted to only when facilities for freezing or for shipping in refrigerator cars are not available, or when the size of shipment is small. Ice-packed poultry is more likely to arrive in poor condition than is dry-packed poultry, which has been chilled or frozen, and shipped in refrigerator cars.

"Milk fed" is a term used to designate poultry that has been fattened or finished on a ration of buttermilk and ground grain. Milk-fed poultry is of the highest quality and is invariably quoted higher than unfinished or farm-fed poultry, which is often quoted as "corn fed" or "grain fed."

Poultry properly graded and packed in boxes has a more attractive appearance than that packed in barrels. In addition, it is customary for many packers to put their lower grades, including old cocks, in barrels and their better grades in boxes. For these reasons box-packed poultry is usually quoted at higher prices than barrel-packed.

Quotations on poultry, whether alive or dressed, are usually on the pound basis, but there are some exceptions; guineas and pigeons are commonly quoted by the pair or dozen, and squabs, although occasionally quoted by the pound, are usually quoted by the dozen.

Two or more grades for each of the various classes of dressed poultry are commonly made. The better grade or grades include those birds that are in good condition of flesh, are clean, well-dressed, and comparatively free from pinfeathers and tears of the skin. The lower grades include birds that are in thin flesh, are poorly dressed, pinfeathery, humpbacked, or have torn or bruised skin. No. 3 poultry consists of birds inferior to both of these grades.

The following market classes of dressed poultry are in common use and some or all of them will be found in every important market:

**Broilers.**—Broilers are young chickens, approximately 8 to 12 weeks old, of either sex, of marketable age but not weighing over 2½ pounds each or 30 pounds to the dozen and sufficiently soft-meated to be cooked tender by broiling. The lighter weights are sometimes quoted as squab broilers.

**Fryers.**—Fryers are young chickens, approximately 14 to 20 weeks old, of either sex, weighing over 2½ pounds but not over 3½ pounds each or 31 to 42 pounds to the dozen and sufficiently soft-meated to be cooked tender by frying.

**Roasters.**—Roasters are young chickens, approximately 5 to 9 months old, of either sex, weighing over 3½ pounds each or over 42 pounds to the dozen and sufficiently soft-meated to be cooked tender by roasting.

**Stags.**—Stags are male birds, of any weight or age, with flesh slightly darkened and toughened, and with comb and spur development showing the bird to be in a state of maturity between roasting chickens and cocks. Stags are less desirable and bring a lower price than soft-meated chickens.

**Capons.**—Capons are unsexed male birds weighing over 4 pounds, usually from 7 to 10 months old and with soft and tender flesh. The heavier capons are usually quoted at a higher price than the lighter capons.

**Slips.**—Slips are incompletely caponized male birds, weighing over 4 pounds, with comb, spur, and flesh development similar to stags. They are sometimes called "capon roasts." The price of slips is considerably below that of capons.

**Cocks.**—Cocks are mature male birds of any weight with darkened and toughened flesh. Sometimes they are quoted under the name of old roosters.

**Fowl.**—Fowl are mature female birds of any age or weight. They are generally divided into several subclasses according to weight and the lighter weights usually bring a lower price.

**Ducks.**—Ducks are often quoted as such without any other distinction but are quite commonly quoted as young or old ducks. Old ducks are mature birds of either sex with toughened flesh. Young ducks are immature birds, usually from 10 to 12 weeks old, with soft-meated flesh. At times young ducks may be referred to as spring or "green" ducklings. The Pekin ducklings produced on Long Island and on duck farms in other sections have become widely known and are commonly quoted as "Long Island ducklings."

**Geese.**—Geese are commonly quoted as such but may be referred to as young or old geese. Old geese are mature birds of either sex more than 1 year old and of any weight. Young geese are immature birds of either sex and of any weight, usually less than 1 year old. Young geese quickly grown and fattened for market are occasionally separately quoted as "green" geese. The actual condition of geese influences the price considerably and specially fattened geese usually bring a premium. Mongrel geese, a name applied to birds produced by crossing the wild gander on domestic geese, are particularly favored on the Boston market and may bring a premium of 10 cents per pound. Wisconsin

"noodled" geese (fattened by hand feeding with noodles) generally command a substantial premium. Chinese or swan geese are usually quoted separately and bring a lower price. Geese that have been partly plucked for feathers or down within two weeks of the time they are slaughtered, usually show small red spots on the skin and usually bring a lower price than do full-feathered geese.

**Turkeys.**—Turkeys are commonly quoted as young and old and as hens and toms. Old turkeys are those over 1 year old with toughened flesh and hardened breastbone. Turkeys classed as young are usually less than 1 year old, are soft-meated and have flexible breastbones. Young tom turkeys generally sell for the highest price, followed in order by young hens, old hens, and old toms.

**Guineas.**—Guineas may be quoted as young or old. Young guineas are immature birds of either sex, are soft-meated and usually weigh less than 2 pounds. Old guineas are mature birds of either sex with toughened flesh and usually weigh 2 pounds or over. Guineas are used largely as a substitute for game. They are often quoted by the pair. At certain seasons guinea broilers may be quoted. In some markets guineas are called "keets" or "guinea keets."

**Squabs.**—Squabs are young pigeons of either sex, usually from 3½ to 4½ weeks old, with muscle fiber undeveloped by flying. At this age they retain their softness of flesh and "baby" fat. They are commonly quoted by the dozen and grades are based upon their weight per dozen and upon their color. The best grades run 10 to 12 pounds per dozen. The most desirable squabs are light in color.

**Pigeons.**—Pigeons as used in market quotations refer to mature birds. They are commonly sold by the pair but may be quoted by the dozen.

In practically all classes of dressed poultry, subclasses are commonly used based upon the weight of the birds, either per dozen (the number commonly packed to a box) or the weight per bird.

Recently tentative United States classes and grades for dressed poultry have been prepared by the Bureau of Agricultural Economics of the United States Department of Agriculture. Under these specifications young chickens are classified as broilers, fryers, roasters, stags, and capons; old chickens as fowl and cocks; ducks as young and old; geese as young and old; squabs in a class by themselves; and turkeys as young hens, young toms, old hens, and old toms. Further classification is provided according to method of plucking, as scalded, semiscalded or dry picked; according to the method of dressing, as drawn or undrawn; according to method of finishing, as milk fed or grain fed; according to chilling, as fresh dressed, fresh hard chilled or frozen; and according to method of packing, as dry packed or ice packed.

Four quality grades are provided which are called, in the order of their excellence, U. S. Special or No. A1, U. S. Prime or No. 1, U. S. Choice or No. 2, and U. S. Commercial or No. 3. These quality grades are based upon degree of fleshing, conformation, condition of flesh, bleeding, freedom from dressing or other defects, and freedom from deformities. The detailed quality specifications for the four United States grades of broilers, which are typical of the grades for all classes, are as follows:<sup>1</sup>

**U. S. Special or No. A1 broilers.**—Young, fine-grained, soft-meated birds with broad, full-fleshed breast, the entire carcass fully covered with fat and with skin soft and glossy lying close to the flesh. Must be well bled, well dressed, free of pin feathers and have empty crop. No flesh or skin bruises allowed, and only slight skin abrasions or discolorations permitted, none of which shall

<sup>1</sup> For detailed information regarding United States standards and grades for dressed poultry write to the Bureau of Agricultural Economics, U. S. Department of Agriculture.

be on the breast. No crooked breasts or other deformities allowed. A broken wing above the wing tip, or a broken leg not permitted. Must be dry picked or semiscalded and dry packed.

U. S. Prime or No. 1 broilers.—Young, soft-meated birds, with well-fleshed breast, the entire carcass well covered with fat, and with soft glossy skin. Must be well bled, well dressed, and practically free of pin feathers, and have empty crop. No flesh bruises and only very slight skin bruises, abrasions, or discolorations permitted, none of which shall be on the breast. No crooked breasts or other deformities allowed. Broken wings above the wing tips or broken legs not permitted. Birds with crops properly removed and sewn up may be included in this grade. Must be dry picked or semiscalded and dry packed.

U. S. Choice or No. 2 broilers.—Young, soft-meated birds with fairly well-fleshed breast, and with carcass fairly well covered with fat. Must be fairly well bled and dressed, and may show few scattered pinfeathers over the entire carcass. Crop must be practically empty. Slight flesh or skin bruises, abrasions, or discolorations permitted, but not more than three such defects to each bird. Abrasions or tears over 3 inches in diameter not allowed except on the back or wings unless properly sewn up. Dented or slightly crooked breastbones or other slight deformities permitted. One broken wing or one broken leg in the flesh permitted if bone does not protrude through the flesh and if not showing excessive bruises or blood clot.

U. S. Commercial or No. 3 broilers.—Young birds with poorly fleshed breast and with carcass poorly covered with fat. May show evidence of poor bleeding and have numerous pinfeathers over the entire carcass. Abrasions and discolorations permitted and hunchbacks or other deformities allowed if birds are fairly well fleshed. Birds badly bruised so as to make any appreciable part of the carcass inedible or birds emaciated or showing external evidence of disease not permitted.

#### MARKETING POULTRY ALIVE

With the exception of considerable quantities of turkeys dressed on the farms by growers, of a relatively small quantity of chickens dressed by producers for shipment to market or to supply a local retail trade, and that marketed by certain specialized farms, such as the Long Island duck farms and the goose-fattening farms in Wisconsin, most poultry is sold or shipped alive by the producer. This practice is common because the average producer is not an expert in dressing poultry and because he does not have the proper facilities for slaughtering, chilling, grading, packing, and shipping; and the quantity of his output is not sufficient to make the installation of such facilities practicable. Most of the poultry marketed by producers, therefore, is sold alive.

In some sections in which turkey raising is common, it is customary for buyers to go into the farming districts in the fall and purchase turkeys from the farmers. Formerly the birds were driven through the country in large flocks; these "turkey drives" sometimes numbered several thousand birds when herded into the railroad town, where they were either shipped alive in car lots or were slaughtered and dressed for market. In late years, turkey drives have become rare.

At the larger eastern markets, especially New York, receipts of live poultry from near-by points constitute less than 20 per cent of the total supply. They are not, therefore, sufficient to supply the demand and it is necessary to obtain shipments in car lots from the poultry packers or shippers in the western producing sections. A large part of the demand comes from the Jewish population, which requires the poultry to be killed by a rabbi. This demand for live poultry is especially heavy and prices are usually somewhat

higher in the spring and fall just preceding and at the time of the Jewish holidays. There is a fairly steady demand for live poultry from consumers, other than Jewish, who prefer to buy fresh-slaughtered birds.

There is a limited demand for live poultry from automobilists at producers' farms, particularly along well-traveled automobile routes, and many producers have established a reputation for especially desirable table poultry. The possibilities of breeding, rearing, finishing, and marketing table fowl of fancy quality to supply a discriminating consumer trade have been little appreciated, yet the opportunities for profitable poultry marketing of this kind are great.

#### EXPRESS SHIPMENTS

Producers who live near good consuming markets usually ship the surplus cockerels, and the hens that they are culling from the laying stock, by express to a poultry dealer. Coops especially manufactured for shipping live poultry may be purchased for this purpose or may be made at home. The frames are made of hard wooden pieces (1 by 2½ inches); the top and sides are constructed of wooden slats or rods or are covered with wire netting, thus providing plenty of ventilation. Poorly ventilated coops are likely to result in losses by suffocation, particularly during hot weather, when the coops are overcrowded. The bottom of the coop should be built solid of ½-inch boards to prevent the birds' toes from sticking through and being injured. Frequently the openings in the top and sides of the coop are large enough to allow the birds to thrust their heads through, but this is likely to result in losses, for, in handling, the coops are often slid over one another, and if a bird's head is protruding that bird is likely to be killed. Coops should be built as light as possible, consistent with strength, to save shipping charges.

A coop commonly used for express shipments is 3 feet long by 2 feet wide and 12 inches high. The height depends upon the kind of fowl to be shipped. A coop of these dimensions will accommodate from 14 to 16 small fowl and from 14 to 20 spring chickens, depending upon their size. It also may be used for ducks, and will accommodate from 8 to 10 head. A higher coop (16 inches) should be used for geese, and one about 20 inches high for turkeys. (Fig. 9.) From 6 to 8 geese can be shipped in such a coop, and 5 or 6 turkeys in a coop 20 inches high. Extra large fowl and old roosters are rather large for 12-inch coops, and 16-inch coops will handle them better, accommodating from 10 to 12 head of either class. The temperature should be considered in shipping poultry in coops, for in cool weather more birds can be shipped in a coop than in hot weather. Larger coops than those described are often used for shipping poultry and for handling live poultry out of the cars at the terminal markets. A partition should be placed in the center of such a coop to prevent injury and loss from the birds piling up when the coop is tipped.

In cooping poultry for shipment, the birds should be graded so that each lot is as uniform in color, size, grade, and class as possible. A uniform lot is much more attractive, and ordinarily sells more readily, and for a better price. Culls, weaklings, and cripples should

not be mixed with the stock of better quality, for they are likely to die en route, and they detract decidedly from the appearance of the lot on the market. If such birds can not be utilized in some other way, or sold locally, they should be shipped in a coop by themselves.

In most markets, certain days of the week are more favorable for the sale of poultry than others. The producer should learn which days are most favorable, and arrange to have his shipments arrive on these days.

The best time of day to forward a shipment depends upon the length of the journey and the time it will arrive on the market. The shipment should be on the road as short a time as possible, but it should arrive on the market early enough in the day so that

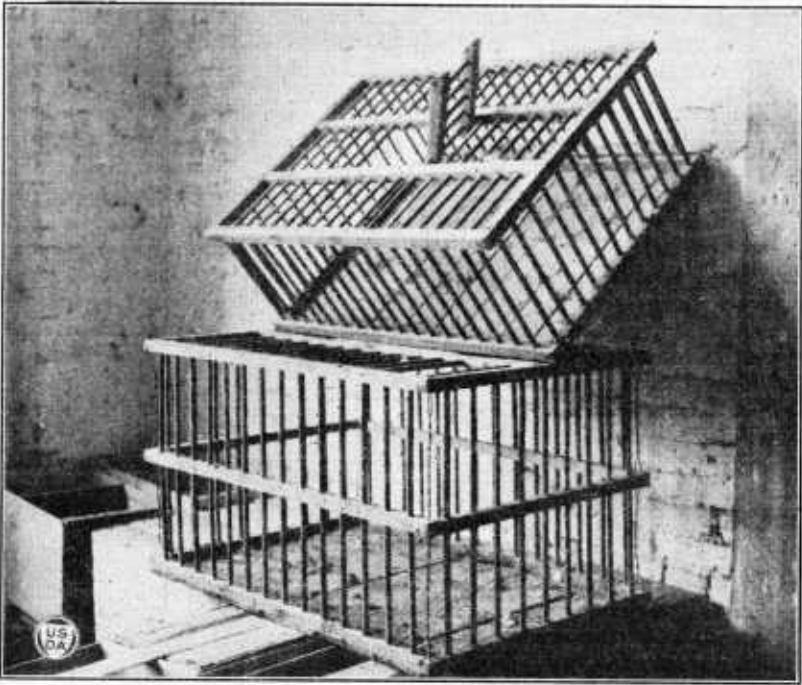


FIGURE 9.—Coops 12 inches high for chickens and 20 inches high for turkeys are commonly used in shipping these fowls alive by express

it will be weighed the same day, for when it is held overnight before being weighed there will be a much larger shrinkage. Live poultry should never arrive late Saturday afternoon, for the birds may be held over until Monday before being weighed, and under such conditions there is a very heavy shrinkage. The most favorable shipping time is early morning if the journey is short and the shipment will arrive in good season the same day for, under these conditions, the lightest shrinkage will result.

The actual shrinkage that may occur varies widely, according to the length of the journey, weather, and the condition of the birds themselves. It may range from 2 or 3 to 15 per cent or more, the lower percentages being more common in the case of short shipments



and under good conditions. Especially fattened poultry will shrink more than other poultry.

Losses may occur as a result of crowding, poor conditions, accident, or rough handling. This loss should be small if the coops are in good condition and the birds are healthy and not crowded during hot weather. Crowding may also result in bruising the flesh, which causes the birds to dress out poorly.

When poultry arrives on the market with the crops full, it is said to be "croppy" or "overcropped." Poultry in this condition may be subject to a deduction in weight to allow for the weight of feed in the crops or it may sell for a lower price. As a rule, birds that arrive in the market the same day they are shipped may be fed liberally just before shipment but no feed should be placed in the coops. If they will not arrive at their destination for upward of 24 hours, one or two tin cans filled with corn well soaked in water should be nailed in each coop. The water in the corn helps to satisfy the birds' thirst whereas water placed in the cans would be likely to spill out, making a wet coop and doing the birds no good. The corn will also help to cut down the shrinkage in weight and still allow the birds to arrive without being in an overcropped condition.

It is not always advantageous to make shipments either of live or dressed poultry to a large distant market in preference to selling locally or in a city nearer home. In any event, before making shipments to a strange market it will pay to write to some of the dealers there to find out what facilities they have for handling poultry of the kind and in the quantity the producer has for sale, and to compare their quotations with the prices paid by local produce buyers on corresponding days, taking into consideration the added shipping charge and the extra expense, if any, for cooping or packing. If it is decided to make shipment, it is also desirable before doing so to get a report through a local bank or some credit agency regarding the firm selected.

#### FREIGHT SHIPMENTS

In the producing sections of the Middle West, most live poultry is shipped by freight or automobile truck. When the producer ships direct to the packer he uses coops similar to those described for express shipments and forwards them by local freight, express, or truck. Often the birds are cooped when sold to local dealers, but sometimes farmers unthinkingly tie or wire the birds' legs together or stuff the birds bodily into sacks. When handled in this way the birds suffer and may even be smothered.

Local buyers usually coop and ship the poultry to a packer by local freight or automobile truck. Often a stock car which provides plenty of ventilation is used for live-poultry shipments, the coops being piled in tiers as they are loaded at the shipping points. Closed box cars should not be used in the summer, for there is danger of smothering and heating the birds when the doors are closed and some or all of them may be lost.

At the packing house the birds are unloaded and placed in coops to await final disposal. A convenient type of coop to use for this purpose consists of a battery of three or four coops built in sec-

tions and mounted on rollers to allow easy moving from place to place. The coops are sometimes called "decks."

If a car-lot shipment of live poultry is to be made, the birds are held, fed, and watered in these decks or elsewhere until enough have been received to make up a carload. Cars built especially for the shipment of live poultry are generally used. (Fig. 10.) Such a car is constructed with an aisle in the center with the coops on each side, one above another, from the floor to the roof. Each coop is provided with a feeding and watering trough. The floors of the coops are removable, which permits two coops to be combined into one of double height for shipping geese or turkeys. The outside of the car is covered with heavy wire screening, which provides good ventilation. In the center is a small room for the use of the attendant who accompanies the shipment. Above this is a water tank

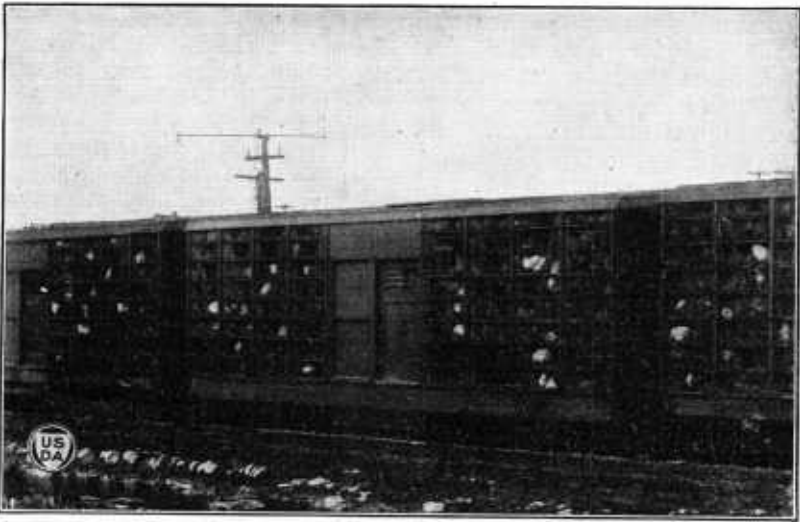


FIGURE 10.—Live poultry is usually shipped by freight in cars especially constructed for this purpose

and beneath is storage space for feed. The birds are more comfortable in such a car, and the attendant can give them better care and do it more easily. A live-poultry car has 128 coops or decks and has a capacity of about 4,600 chickens, which will weigh approximately 16,000 to 18,000 pounds net. It will accommodate from 2,000 to 2,400 geese and from 1,200 to 1,500 turkeys.

Live poultry in such cars may be in transit from two to three days to a week or more. To reduce shrinkage in weight during shipment and to prevent losses from death, the attendant must give the birds good care and must feed and water them regularly. The last full feed is given on the day before the car is to be unloaded and only a partial feed is given on the morning of unloading so that the poultry will not be overcropped. In New York City there is a regulation of the department of health which prohibits the sale of poultry with crops that average more than 2 ounces in weight. As

a result all cars of live poultry arriving for that market are inspected under the supervision of the United States Department of Agriculture, both for condition of health and for size of crop, before they can be unloaded. Changes in weight during transit may vary considerably and may represent a loss or a gain, depending upon the health and condition of the poultry, the skill of the carman, and weather conditions.

Live-poultry cars are supposed to be cleaned between shipments and to be disinfected when necessary by the company operating them, but this is not always possible. When a car in a dirty condition, is received on the shipper's switch it should be given a good cleaning to prevent losses from disease and insanitary conditions.

#### FINISHING OR FATTENING POULTRY

The purpose of fattening poultry for the market is to (1) obtain a gain in weight and (2) improve the quality of the flesh and thereby secure a higher price. Producers fatten or finish poultry to a less extent than they do any other class of livestock. Mature hens are usually in a fairly good condition of flesh when marketed, and special fattening methods ordinarily are not required. Young chickens are more growthy, and, although they may have made a good growth of bone and frame, they are likely to be in a comparatively thin condition of flesh.

##### RANGE FATTENING

When the producer undertakes to fatten his poultry, the most common method employed is range fattening. This method consists of feeding more heavily or feeding a greater proportion of fattening grain, usually corn, for a period of one to three weeks before the birds are marketed. No other change is made in the care of the birds and they are allowed to range about the farm as usual. Such a method of feeding will result in a gain in weight, especially if the birds have previously been rather scantily fed and compelled to rustle for most of their food.

With certain classes of poultry, especially to the turkey and the guinea, this is the most practicable method of fattening, for these fowl are semiwild by nature and when shut up in a pen for fattening they are likely to go off feed after a few days and to lose flesh rather than gain. When turkeys have access to a range where there are plenty of nut-bearing trees, like acorns, in a year when the mast is good and the weather cool, they will fatten of their own accord and will not need a great quantity of supplemental feeding.

##### PEN FATTENING

Producers who make an effort to supply high-class table poultry for a retail trade often fatten their poultry in pens. In pen fattening, chickens are confined to a pen, with or without a small yard in which to range, and are fed heavily on a fattening ration for a period of two to three weeks. This method is used entirely on the Long Island duck farms to get the spring ducklings in shape for market. On these farms the ducklings are generally allowed to range in a yard, and, in most cases, are allowed access to water in

which they can swim. Geese fatten very readily in pens. On the large geese-fattening farms 100 or more are fed in an open pen. When fattened in small numbers they are usually confined to small pens in a poultry house and are not allowed access to a yard.

#### NOODLING GEESSE

A special form of pen fattening of geese is "noodling." This method is practiced in some sections of Wisconsin. The geese are kept in small darkened pens and four or five times a day are forcibly fed by hand with noodles. This is a laborious method of fattening, but produces excellent gains.

#### CRATE FATTENING

In crate fattening, 6 to 10 birds are confined in a small crate or coop and fed for a period of 10 to 14 days. The object is to keep the fowls quiet, so they will use their feed to put on flesh. Crate fattening is not extensively practiced by producers in this country, although some use this method to produce especially fine table poultry.

In crate fattening the birds are fed a ration composed of butter-milk and ground grain mixed to a consistency that can be poured from a pail into troughs fastened to the front of the coops or crates. Although 8 to 10 days is about the usual length of time for feeding chickens, they will continue to make gains for a longer period and their market quality will be further improved; but the gains made during the later period are neither so rapid nor so economical, and the 10-day period usually proves to be the most profitable. Young chickens of broiler size, or larger, are usually crate fattened. Hens are sometimes fed by this method to improve their quality. Other classes of poultry are occasionally crate fattened, but not to any great extent.

The question may arise with producers as to whether it would pay them to crate fatten their poultry before shipping it alive to market. As a general rule this does not pay unless the birds are in poor condition. It is more practicable to kill and dress fattened poultry before marketing it and thus save the shrinkage, which is especially heavy on shipments of live poultry that has been fattened.

#### COMMERCIAL FATTENING AT POULTRY-PACKING PLANTS

A large proportion of the young chickens received at poultry-packing plants are large of frame but poor in flesh. They would not make very desirable table poultry if dressed out in that condition, and, in addition, they are in excellent shape to respond to feeding and to make quick, profitable gains. Many poultry packers, to secure a gain in weight and to improve the quality of the flesh and the carcass, operate commercial fattening or finishing stations as a regular part of their business. (Fig. 11.)

This has gradually come to be a more and more important branch of the business, until at present feeding stations, as they are called, are scattered throughout the important poultry-producing sections of the Middle West and South. Some of these stations are very

large and permit the feeding of from 10,000 to 60,000 or more birds at one time. The season's operations begin about June and extend to January. The period of feeding for young stock is from 10 to 14 days; for hens the feeding period is shortened to 6 or 8 days.

The handling of poultry at feeding stations is about as follows: As the birds are received they are sorted and those suitable for fattening are placed in the "fattening batteries." These batteries are made of wood or steel and each consists of 16 compartments or coops, 8 on a side, arranged in four tiers, one above another. The compartments have wire bottoms, so that the droppings fall through onto a flat pan which is drawn out periodically and cleaned. The batteries are usually mounted on rollers or handled on trucks, so that they can be moved readily to the killing room. Each compartment of the battery has a capacity of from 5 to 10 chickens, depending upon the size of the chicken.

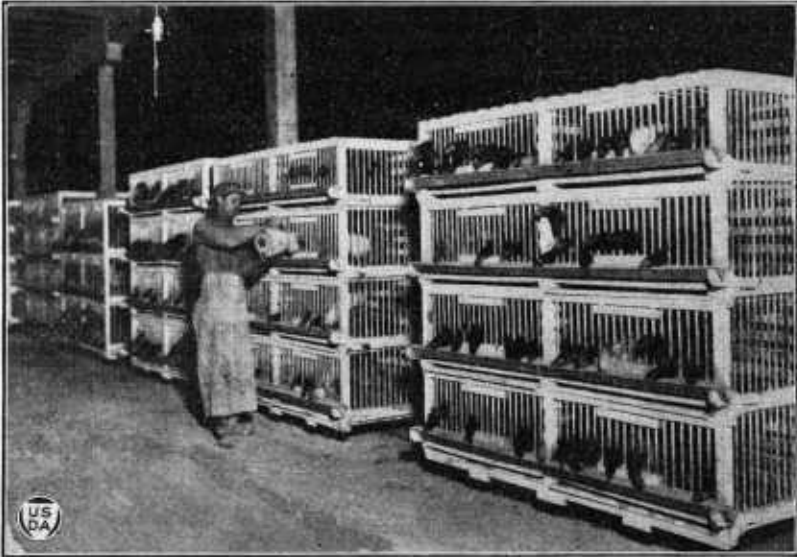


FIGURE 11.—Finishing or fattening poultry is an important activity in most modern poultry-packing establishments

As the batteries are filled, they are arranged in rows in the feeding station, leaving aisles between so that the feeder can pass through to do his work. The birds are not fed for 12 to 24 hours but are given all the water they will drink. After that the quantity of feed is gradually increased until they are given all they will clean up at each feeding period. The birds are usually fed twice a day. The ration consists of ground grains mixed with buttermilk to the consistency of batter. This is poured from a spouted can into troughs that are fastened in front of each compartment in the battery.

As the birds are put into the batteries they are sorted carefully to eliminate weak ones or those in poor condition, which will not make profitable gains and are likely to go "off" feed or even die during the fattening process. If no opportunity is afforded to sort the birds as they are placed in the batteries, the feeder should watch

them carefully and remove for slaughter any that go off feed or that are for any reason unsuitable for fattening. Satisfactory gains are usually secured, but they may vary greatly, depending upon weather conditions and the age, condition, and individuality of the birds. The gains in weight may vary all the way from 5 to 50 or more per cent of the initial weight.

Results obtained from feeding a considerable number of birds for a period of 14 days in several large commercial establishments showed the following average gains: Hens, 12 per cent; roasters, 22 per cent; springs, 29 per cent; broilers, 40 per cent.

It will be seen that the younger birds make the best gains.

The gains made per pound of feed consumed also show a considerable variation. Observations made on broilers showed that it took from 2.09 to 4.79 pounds of feed to produce 1 pound of gain; on hens, from 3 to 12.96 pounds. In another investigation with a large number of chickens, an average of 3.26 pounds of feed was required to produce 1 pound of gain.

There is always some death loss among birds which are being fattened. With good care and the prompt removal and slaughter of any birds which are not standing the feeding well, this loss should not run more than 0.1 to 0.2 per cent daily.

At the end of the feeding period the fattened birds are taken from the feeding room to the slaughtering room in the batteries in which they have been fed. This practice is much better than to transfer them to other coops, as the flesh is very soft and easily bruised or injured in handling. After slaughtering, which consists of bleeding and picking, they are hung on special racks and run into the chill room, after which they are graded and packed. Birds fattened in this way are sold as milk-fed poultry and bring better prices than the ordinary range-fattened or grain-fed stock.

#### KILLING AND DRESSING POULTRY

It is not uncommon, particularly during warm weather, for dressed poultry to arrive on the market in bad condition. This may be caused by improper methods of killing, or by improper or inadequate cooling and packing, or by delayed movement in transit. One of the most common evidences of bad condition of dressed poultry is the development of greenish areas on the skin and flesh. Birds showing this coloration are called "green-struck." When this condition is bad it means that the poultry is unfit for food and must be destroyed. The loss, therefore, is considerable. It is of utmost importance that the killing, dressing, packing, and shipping of poultry be carefully and properly done to safeguard keeping quality and to eliminate loss.

#### PRODUCERS' METHODS

Few producers have a sufficient quantity of poultry to justify the expense of installing elaborate equipment for killing, dressing, chilling, and marketing. Their methods at best must be more or less unsatisfactory, and for this reason producers should attempt to dress poultry only when weather conditions are favorable, when the birds are to be sold for immediate consumption, or when they are to be only a few hours in transit to market.

It is important that birds to be dressed have empty crops when killed, for this not only improves the appearance but enhances the keeping quality. No solid food should be fed for 24 hours before slaughter, but plenty of water should be given during this period to help empty the intestines.

The common old-fashioned method of killing poultry for home consumption is to chop off the head. This will not do in the case of market poultry, for the head must be left on as an evidence that the bird was in good health when slaughtered. A simple method of

killing consists of looping a cord around both legs and hanging the bird head down at a convenient height for picking. In place of a cord, a wire shackle which holds the legs apart may be used. The head is grasped in the left hand, the mouth opened, and the jugular vein in the throat just below the base of the skull is cut with one slash of a sharp, narrow-bladed knife. (Fig. 12.) By hanging the bird head down and exercising care in making the cut, free bleeding is induced and a well-bled carcass is obtained. Poorly bled poultry shows dark, blood-filled veins in the neck and on the breast

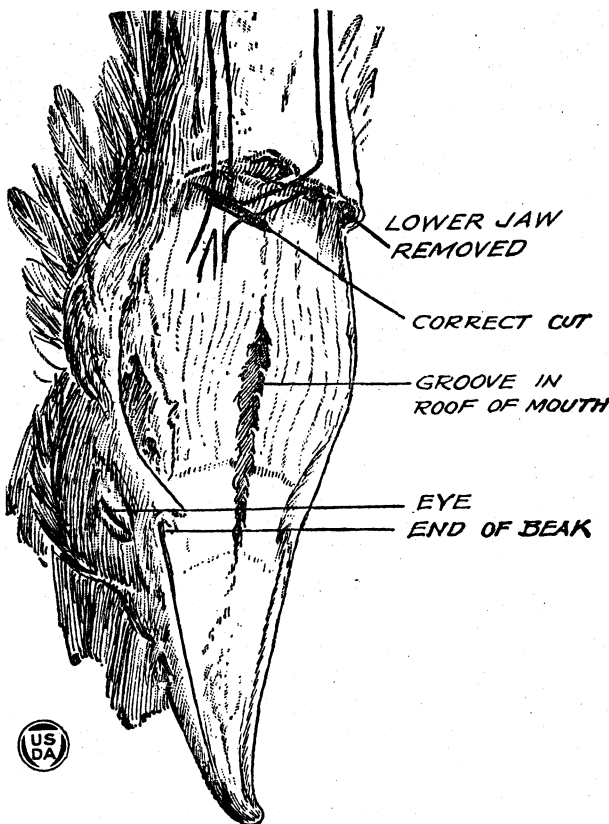


FIGURE 12.—Good bleeding depends upon making the cut in the right place

and wings or reddened areas of the skin; these not only give a less pleasing appearance but cause the flesh to spoil more quickly.

If the birds are to be scald picked, they may be stunned by a blow on the back of the head with a short club before they are bled or the knife may be thrust into the base of the brain through the mouth. Sometimes they are neither stuck nor stunned, but are allowed to die by bleeding. Some States have laws which make stunning compulsory if the birds are not stuck. The next step consists of hanging a cup, called a blood cup, to the lower bill of the bird by means of a hook. (Fig. 13.) This cup catches the blood

and its weight serves to hold the bird more quietly in position and to prevent the blood being scattered around. Sometimes a small weight is used in place of the cup and the bird is hung over a trough or other receptacle which receives the blood.

When the scald method of picking is employed the bird is allowed to hang until it is thoroughly bled out. It is then taken down and, held by the head and feet, plunged into a tank of water which is heated nearly to the boiling point. The bird is soused around to permit the water to penetrate through the feathers to the skin, but should be scalded only long enough to make the feathers pull easily. Further scalding partially cooks the skin and flesh, which gives the carcass a less attractive appearance and lowers its keeping quality. (Fig. 14.) It is difficult to secure exactly the right amount of scalding. The feathers are removed as rapidly as possible while the bird is suspended by its legs or is held on a bench or table.

When birds are scald-picked it is a common practice to "plump" them. This is accomplished as soon as the plucking is finished by dipping the birds first in hot water and then in cold water, which gives them a somewhat rounded, plumper appearance. Care must be taken both in plumping and in scalding to see that the water used is not so hot as to cause discoloration of the skin on the thighs.

A modified method of scald picking known as the "slack-scald" or "semiscald" method has come into use during the last few years. In this method, the birds, after being killed and bled, are plunged in water which is maintained at a temperature of 125° to 128° F. They are kept in this water from one-quarter of a minute to one minute, depending upon the class of poultry. The feathers are then picked off instead of being rubbed off as is done with scalded poultry. After plucking, the carcasses are carefully dried. From this point on they are handled in the same way as is dry-picked poultry.

When properly done this method results in carcasses that have every appearance of dry-picked poultry. The plucking can be ac-



FIGURE 13.—A blood cup 6 inches high, 3 inches in diameter across the top and 2 inches across the bottom, is a very satisfactory type



completed more rapidly than in dry picking and the pinfeathers can be more completely removed. This results in a higher percentage of first-grade poultry. It is important that the carcasses be dried before they are packed or damage from mold is very likely to occur.

The cold storage of semiscalded poultry has generally been successful. At present semiscalding is the method that is in almost universal commercial use in this country.

In some markets a premium is paid for dry-picked or semi-scalded poultry. The producer must, of course, know the demands of the market to which he ships and must meet these demands as far as possible. Dry picking is more difficult than scald picking and requires considerable skill and practice to secure speed and best results. As soon as the cut has been made for bleeding, the point of the knife is immediately plunged through the roof of the mouth into the brain. This operation is known as "sticking" or "braining" and serves to cause a loosening of the muscles that hold the feathers, so that they can be plucked more easily. The ease of picking depends greatly upon the suc-

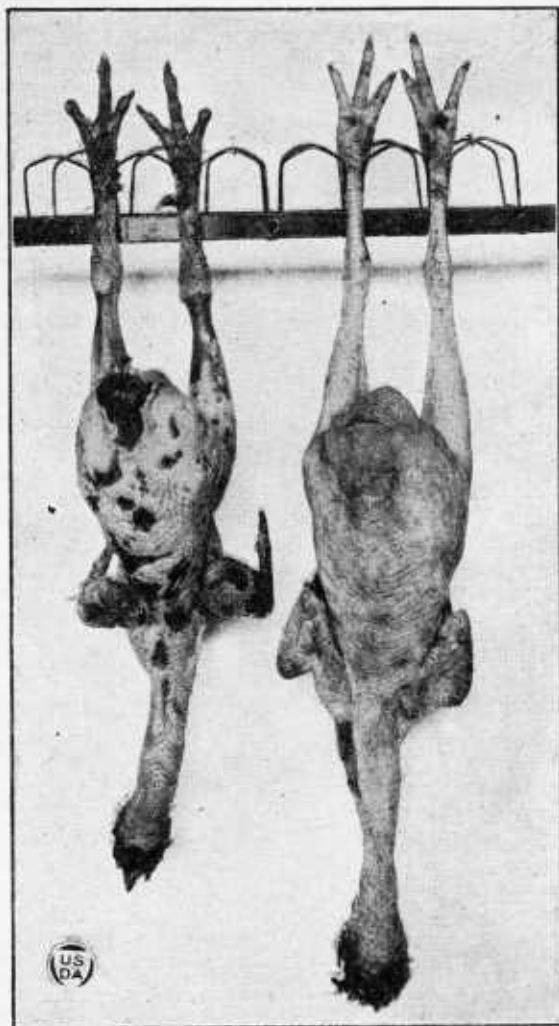


FIGURE 14.—Partial cooking and breaking of the skin common to scald-picked poultry (left) gives it a less attractive appearance and a lower keeping quality than dry-picked poultry (right)

cess of the "sticking" or "braining." As soon as the bird is stuck, the blood can or the weight should be hooked on and the plucking of the feathers should begin immediately. If plucking is delayed the feathers soon set and are then a great deal more difficult to pluck.

The large tail and wing feathers are pulled first (figs. 15 and 16) and then the feathers from the breast and the sides. (Fig. 17.)

These are followed by feathers from the thighs and legs (fig. 18), and next the soft body feathers between the legs and the hip and back feathers. Then come the neck feathers (fig. 19), and finally the small feathers on the wings. (Fig. 20.) In plucking, care must

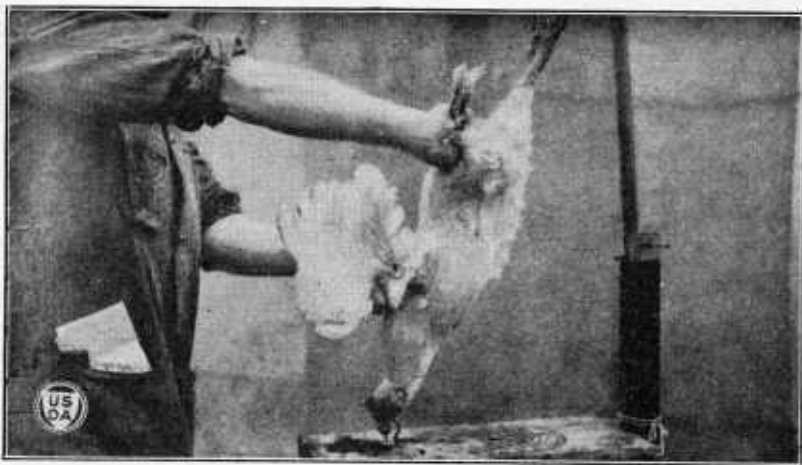


FIGURE 15.—The first step in dry picking is the removal of the main tail feathers

be taken to pull with the slant of feathers rather than against it to prevent tears. The plucking should be done systematically and fairly cleanly as each section is covered. Too much attention should

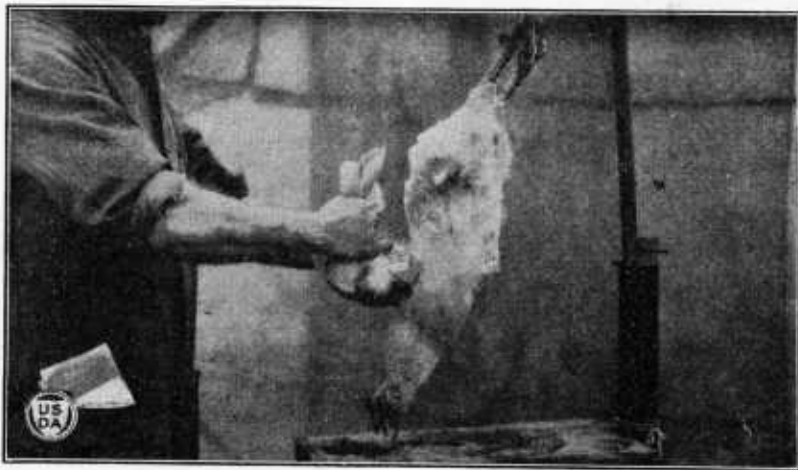


FIGURE 16.—The main wing feathers are pulled next

not be given to pinfeathers the first time over, as it is necessary to get over the entire body and remove the bulk of the feathers while they come out easily. This rapid removal of the bulk of the feathers is commonly known as "roughing." After the bird has been rough picked, the picker should then go over the carcass again to remove

any feathers missed and to pluck all pinfeathers. This process is known as "pinning." If the crop contains much feed, it must be removed. It is much better, however, to withhold feed from the birds for a sufficient length of time before killing so that the crops will be empty.



FIGURE 17.—The first body feathers plucked should be those of the sides and breast

All the feathers are plucked from most kinds of poultry, but there are exceptions to this rule. It is a common practice with fancy-boxed fowl to leave some of the feathers on the last joint of the



FIGURE 18.—Following the side and breast feathers, the thighs are stripped of feathers

wing. This style of plucking is also common with turkeys. Capons often have the feathers left on the last joint of the wings, the tail, the thighs for about one-third of the distance from the hock joint, and the neck for about one-third of the distance from the head.

There is, however, a growing tendency to pluck capons clean which is a desirable practice. With Long Island ducklings, the main wing and tail feathers and a part of the neck feathers may be left on the carcass. Fattened geese frequently have the main wing



FIGURE 19.—The plucking of the body feathers is followed by stripping the neck feathers left on. Guineas, on account of the dark, unattractive appearance of their flesh, are commonly displayed for sale unplucked.

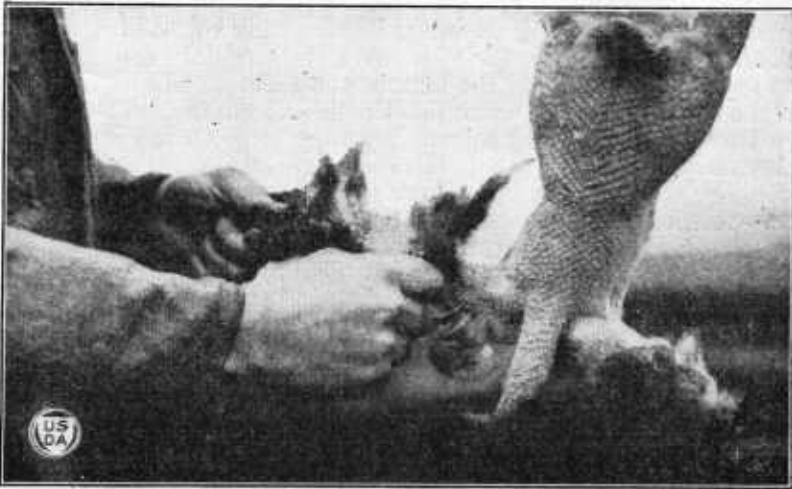


FIGURE 20.—Removing the smaller wing feathers completes the plucking of a fowl except for the removal of the pinfeathers

Pigeons are often sold in the same condition. Squabs are occasionally marketed unplucked, but are more often cleanly plucked.

As soon as the birds are plucked, whether by scalding or dry picking, they must be cooled as promptly as possible. Sometimes they are hung in the air, if the temperature is cool, but this is not a desir-

able practice, for it is improbable that the air temperature will be at the most favorable point for this purpose. Too high a temperature delays cooling too much and lessens the keeping quality of the bird, whereas a temperature sufficient to freeze the flesh is likely to harden it while the interior of the body is still warm and may result in early spoilage.

If mechanical refrigeration or ice-cooled chill rooms are available the birds should be held at 32° F. or as near that temperature as practicable to get most desirable results. As a rule such facilities are not available to the producer and cooling with water is resorted to. In water cooling the carcasses are placed in tanks of cold water as soon as they are plucked. If a plentiful supply of running cold water is available it should be brought into the tank at the bottom and allowed to overflow at the top. Usually it is necessary to place ice in the water in order to secure the desired chilling. It is important that the birds be left in the water until the body heat has been thoroughly removed from the carcass, otherwise spoilage will develop more quickly. Where a comparatively small quantity of poultry is chilled in ice water and where any considerable delay in arrival at the market is improbable four or five hours will be sufficient to chill the carcasses. They should then be packed in layers of ice and shipped immediately.

#### COMMERCIAL METHODS

In the poultry-packing house the same general methods are used and principles observed as those described, but the business is much more highly specialized and the facilities much superior. Formerly in most poultry-packing plants the great bulk of poultry was dry picked. In dry picking the killer usually "roughs" the birds; that is to say, he removes only the bulk of the feathers. If he is very expert, he may be able to accomplish this in one minute. The birds are then turned over to the "pinners," who go over them carefully and remove any scattered feathers left on the carcass and the pinfeathers. A rougher will keep several pinners busy.

At present most up-to-date poultry packing plants utilize the semiscald method of plucking and have installed machinery to do the semiscalding automatically. The birds are hung by the feet in shackles which are attached to a travelling chain. They are either bled through the mouth or are "kosher bled," that is, the throat is cut from the outside. The birds bleed as they are carried to the scalding tank through which they are taken automatically, being agitated meanwhile in such a manner as to enable the water to penetrate the feathers thoroughly. The machine may be so adjusted as to keep the birds in the water just the desired length of time. The proper temperature of the water is important and this is regulated to a nicety by thermostatic control. When the birds emerge from the scalding tank they are removed from the traveling chain and hung on strings for plucking. After plucking, they are dried by electric fans.

As soon as a bird is plucked and dried it is laid or hung on racks and the head may be wiped to remove any blood. If the crop contains feed, it should be removed through a small incision of the skin at the base and side of the neck and the incision should be sewed up.

The heads are then wrapped in parchment paper. A desirable type of rack is made entirely of metal and is mounted on rollers, the birds being hung by their feet in such a position that they do not touch one

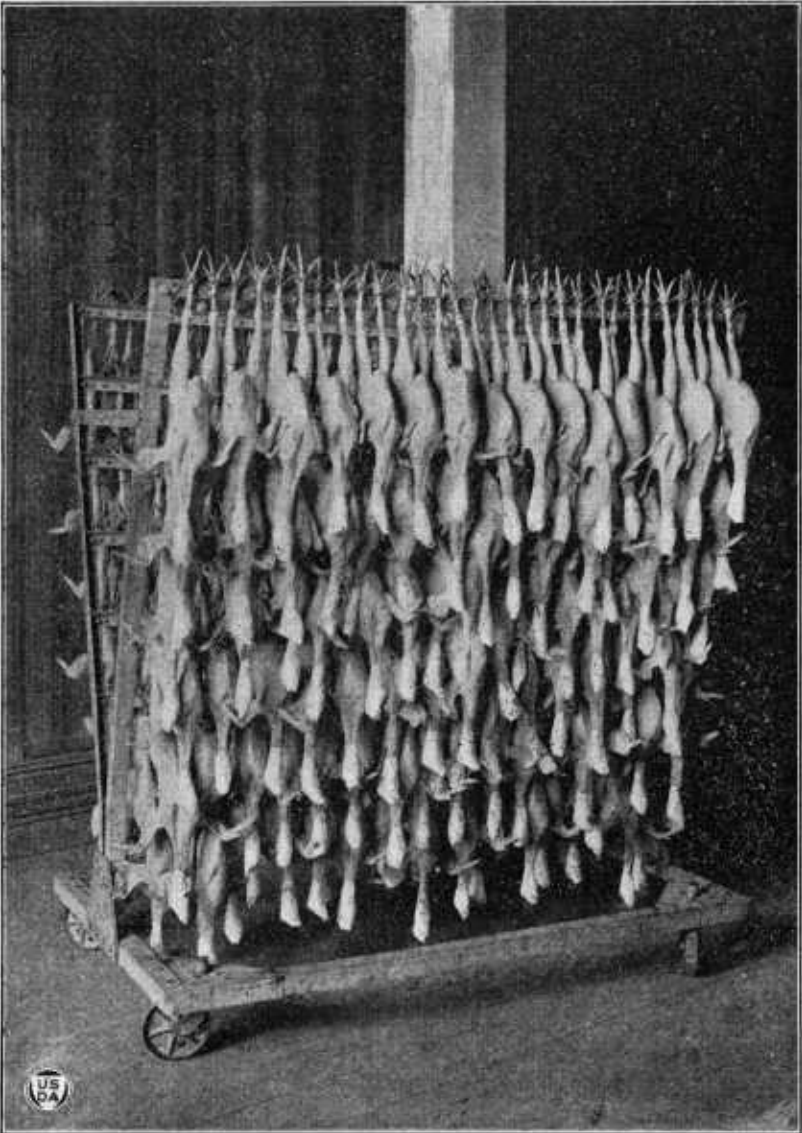


FIGURE 21.—Poultry, after being plucked and head wrapped, should be hung on cooling racks and immediately transferred to a chill room

another and thus delay cooling. (Fig. 21.) Such a rack will hold from 120 to 150 birds. As soon as a rack is filled it is immediately removed to the chill room (which should be maintained at a temperature of 32° F.) and held until the birds are thoroughly chilled—

usually about 24 hours. The shrinkage in weight in killing and picking ranges from 11 to 14 per cent for chickens and somewhat less for hens.

Under ordinary conditions, dressed poultry that is to be shipped to market should not be drawn. All the preparation it requires is bleeding and the removal of the feathers; the head and feet should be left on.

During the last few years some progress has been made in the marketing of poultry full drawn at point of slaughter. Usually such poultry is first chilled to remove all body heat and is then full drawn, that is, the entrails are removed and the head and feet and legs are cut off. The gizzard is separated from the viscera, is cleaned, wrapped in parchment with the heart, liver, and neck, and placed inside the bird. The drawn carcasses are then wrapped in paper or placed in cartons and then packed in boxes or other containers and quickly frozen at a temperature of  $-10^{\circ}$  to  $-25^{\circ}$  F. They must be held and transported in a hard frozen condition and for best results should be handled hard frozen in the retail store.

Most of the full-drawn poultry is sold at present to hotels and restaurants. It is possible that its use for retail sale will grow in favor as retail stores are equipped with refrigerator facilities. Storage of drawn poultry may also result in carcasses free from the flavor that is characteristic of poultry frozen and held for considerable periods without the removal of the entrails.

In the case of ducks and geese, the down is very difficult to remove from the carcass and often requires special methods. Part of this down can be rolled off with the hand when moistened with water, and part of it is sometimes shaved off with a sharp knife. In some cases ducks and geese are steamed instead of being scalded, by hanging them in a steam vat until the feathers and down pluck easily. If a steam vat is not available, steaming is sometimes accomplished by dipping the fowls in hot water or by laying them on a rack suspended above boiling water for a short time and then wrapping them in a cloth or blanket to allow the steam to penetrate the feathers.

Feathers form a valuable product of poultry plants. Those from dry-picked poultry are more valuable than those from scalded. Goose feathers are most valuable, followed in order by duck, turkey, and chicken feathers. In commercial plants the coarse feathers and the soft body feathers are kept separate, as they are sold separately. Feathers are cured by spreading them in a thin layer on the floor of a well-ventilated loft. After they are thoroughly dried they are sacked and shipped to market. Failure to cure the feathers thoroughly will result in their heating and molding, and they are likely to arrive on the market in bad condition.

#### GRADING AND PACKING

Usually producers do not have enough dressed poultry to market to make it possible to do much in the way of grading, but an effort should be made to secure as great uniformity as possible in appearance and size.



In commercial packing plants, grading is an important process. After being chilled the birds are sorted according to size and kind and are graded on the basis of their weight and freedom from blemishes, torn skin, pinfeathers, and deformities. Grading should be done in a chilled room, preferably by daylight, as this permits a more careful examination and grading according to color. (Fig. 22.)

Most producers pack their dressed poultry in barrels because ice can be more readily used in barrels than in other types of packages, and because they do not have enough poultry to market to establish a commercial pack and brand of their own which would become known on the market. In barrel packing the dressed carcasses are packed by placing first a layer of ice and then a layer of poultry,

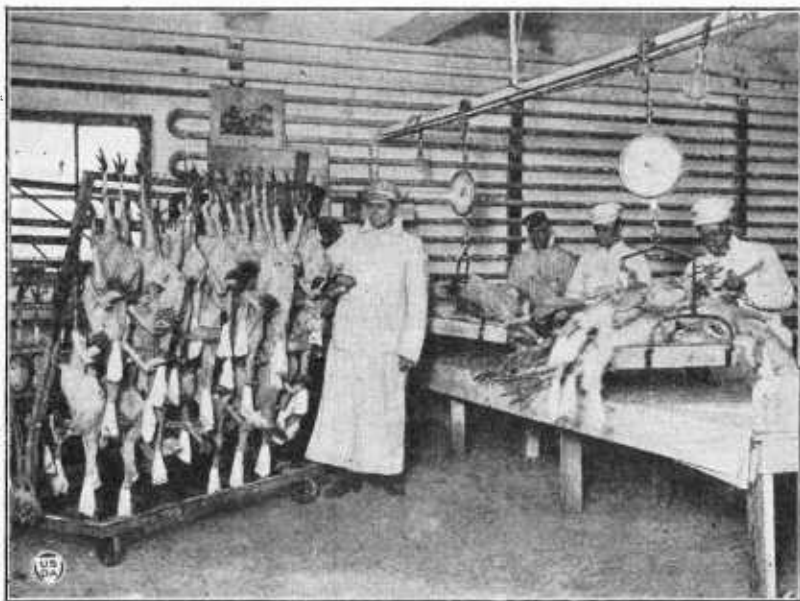


FIGURE 22.—Grading should be done in a chilled and naturally lighted room

covering this with a layer of cracked ice and continuing to alternate in this manner until the barrel is filled. Enough space should be left on top of the last layer to provide for a good header of large chunks of ice. The barrel should be covered over the top with a piece of burlap tacked to the sides.

Under commercial conditions in the larger packing houses, the barrel pack is used largely for the No. 3 poultry and for the old cocks and scald-picked poultry—in other words, for the poultry of a less desirable grade. The more desirable poultry is packed in wooden boxes, with 12 birds to a box. The style of packing differs somewhat. Some birds are packed a single layer to the box; others are packed with two layers of six in each. (Fig. 23.) The boxes are lined with parchment paper and a fine grade of chickens may be individually wrapped. All box-packed and much barrel-packed



poultry in up-to-date packing establishments is "dry packed," that is, packed without ice. All boxes and barrels should be stenciled to show the kind of poultry the package contains, and the gross, tare, and net weights. In commercial plants the poultry is held in the chill room at a temperature as close to 32° F. as possible, until it is shipped to market. If it is to be stored for a longer period a lower temperature is maintained.

#### SHIPPING DRESSED POULTRY

Dressed poultry is usually shipped by the producer comparatively short distances to market and as ice-packed shipments must be moved quickly express shipments are generally resorted to. Even

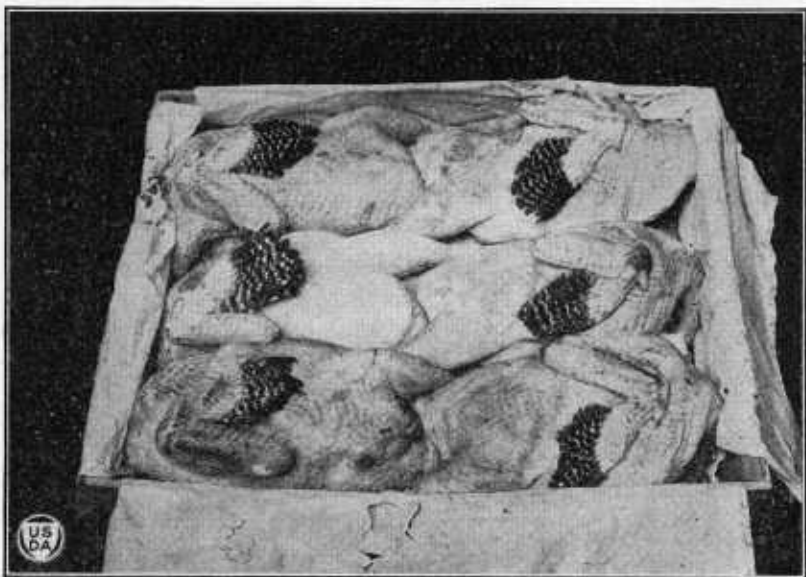


FIGURE 23.—A common method of side packing poultry is illustrated by this box of hen turkeys

then there is always danger of dressed poultry spoiling if delayed en route. If dressed poultry is to be shipped long distances, as from the packing houses of the Central West to the consuming markets of the Atlantic seaboard, it is generally out of the question to use express service. Such shipments must be handled safely, and therefore generally are moved in car lots by refrigerator freight. Either ice or dry packed may be shipped in refrigerator cars if the car is kept properly iced.

In icing a car for shipping poultry, salt is used, and the car is closed to allow the temperature to be reduced to 35° F. or less before loading begins. Loading should be accomplished quickly to prevent any unnecessary rise in temperature. It is desirable to hang a heavy canvas over the open door, when loading, to hold in the cold air. The boxes of poultry are passed in through a slit in the canvas curtain. When dressed poultry is shipped in a mixed car

with other produce, especially with eggs, it is necessary to brace each portion of the load separately, otherwise the heavy packages of poultry are likely to cause damage to the eggs. The poultry should be loaded at the ends of the car next to the ice bunkers and on the bottom of the car, as the temperatures are lowest at these points. If salt is mixed with the ice in the bunkers to lower the temperature, the eggs may be frozen if they are placed next to the bunkers.

#### COMMERCIAL STORAGE OF DRESSED POULTRY

When dressed poultry is not moved into immediate channels of consumption it should be held in cold storage in a frozen condition at a temperature of about 0° F. When the poultry has been chilled but not frozen and is to be cold stored it should be removed immediately to a sharp freezer, where the temperature is -5°. The boxes should be loosely piled or staggered to allow a free circulation of air and bring about quicker freezing. A low temperature and quick freezing are very desirable, since the poultry will have a better appearance when thawed if it has been frozen quickly. After the poultry is frozen hard, it should be moved to the permanent storage room where a uniform temperature should be maintained. Dressed poultry should not be frozen at the packing house unless it is to be held there for some time, for poultry held at a temperature of 10°, and then transferred into a higher temperature, around 35°, in a refrigerator car, will sweat, which is bad for its keeping quality. It is preferable, therefore, merely to chill thoroughly the dressed poultry that is to be shipped soon and to freeze it for storage after it has arrived at the market where it is to be held in cold storage.

The period of time dressed poultry may be held in cold storage varies. Most poultry moves out of storage within a year's time, but it can be held for a longer period in good condition. There are various State laws regulating the cold storage of dressed poultry and other products, some of which provide that the dates on which the poultry goes into and comes out of storage must be marked on the packages. Limits are placed on the length of time that poultry can be held in cold storage.

When dressed poultry has been held in cold storage it should preferably be marketed while in a frozen condition. If it is delivered to the consumer while frozen and then thawed out in the consumer's refrigerator, just before being used, it is much more wholesome than if it is thawed out before it is displayed for retail sale. It is a common practice to thaw out frozen stock by placing it in cold water before it is displayed for sale, because some consumers are averse to cold-storage products and the thawed-out birds have more nearly the appearance of being freshly killed. Poultry thawed out in this way is especially likely to spoil quickly unless sold immediately and kept at a cool temperature. Sometimes poultry that is thawed out is not needed for immediate consumption and is put back into storage. This is a bad market practice, for frozen poultry that has been thawed out will not keep so well after refreezing, and poultry thawed in water is especially liable to deterioration when put back into the freezer.

## CANNED POULTRY

Poultry is canned commercially in a large variety of forms. The most common canned products are whole and half chicken, boned chicken, chicken-a-la-king, creamed chicken, chicken chop suey, and various forms of chicken soups and broth. More than 25,000,000 pounds of dressed poultry are used annually for this purpose. At present, the great majority of this poultry is canned in plants that have requested and are receiving Federal inspection of the poultry used. This is a regular veterinary inspection to determine the freedom of the poultry from disease and to insure that the poultry meat to be canned is otherwise sound and wholesome for human food. Poultry products canned under Federal inspection bear the official inspection legend on the labels of the cans in which they are packed. This legend reads "Inspected and Certified by Bureau of Agricultural Economics, U. S. Department of Agriculture."

## POINTS FOR THE PRODUCER TO REMEMBER

If you market poultry alive:

Study your shipping facilities and determine when shipments made on different trains or routes will arrive on the market. Plan to make your shipments so that the birds will be cooped as short a time as possible thus reducing the shrinkage.

Do not overcrowd the birds in the coops, particularly during hot weather, or your losses will be heavy.

If you market dressed poultry:

Fattening the birds before they are dressed will usually pay well.

Dress the poultry in such a way as to meet the demands of your market.

Chill the birds immediately and thoroughly after killing and picking.

Never draw poultry unless your particular trade demands it.

Do not risk shipping dressed poultry without packing it in plenty of ice in warm weather.

If you market either live or dressed poultry:

Never have shipments arrive on the market Saturday afternoon.

Find out which days are best on your market and plan your shipments accordingly.

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